CLAIMS

We claim:

1. A apparatus comprising:

a substrate having a source region, á drain region, and a channel region having a void to provide a barrier to lines of force to reduce leakage current.

2. The apparatus of claim 1 wherein said void is located substantially in a center of said channel region.

3. The apparatus of claim 1 wherein said void is approximately 50 nm across.

4. The apparatus of claim 3 wherein said void is located at a depth of approximately 1000 angstroms in said channel region.

5. The apparatus of claim 1 further comprising a gate region.

6. The apparatus of claim 5 wherein said void is located near an edge of said channel region adjacent to said source region.

7. The apparatus of 6 further comprising a void located near an edge of the channel region adjacent said drain region.

8. An apparatus comprising:

a gate region; and

a substrate having a source region, a drain region, a channel region, and a void below said source region to provide a barrier to lines of force to reduce leakage current.

9. The apparatus of claim 8 wherein a void is located below said drain region.

10. The apparatus of claim 9 wherein said source region and said drain region are under compressive stress.

11. The apparatus of claim 8 wherein said source region is under tensile stress.

12. The apparatus of claim 8 wherein said drain region is under compressive stress.

13. The apparatus of claim 8 wherein said gate region is polysilicon.

14. The apparatus of claim 8 wherein said gate region is metal.

15. An apparatus comprising

a gate region having a void to provide a barrier to lines of force to reduce leakage current; and

a substrate having a source region, a drain region, and a channel region.

16. The apparatus of claim 15 wherein said void is located at a depth of approximately 1000 angstroms in said gate region.

17. The apparatus of claim 15 wherein said gate region is polysilicon.

18. The apparatus of claim 15 wherein said gate region is metal.